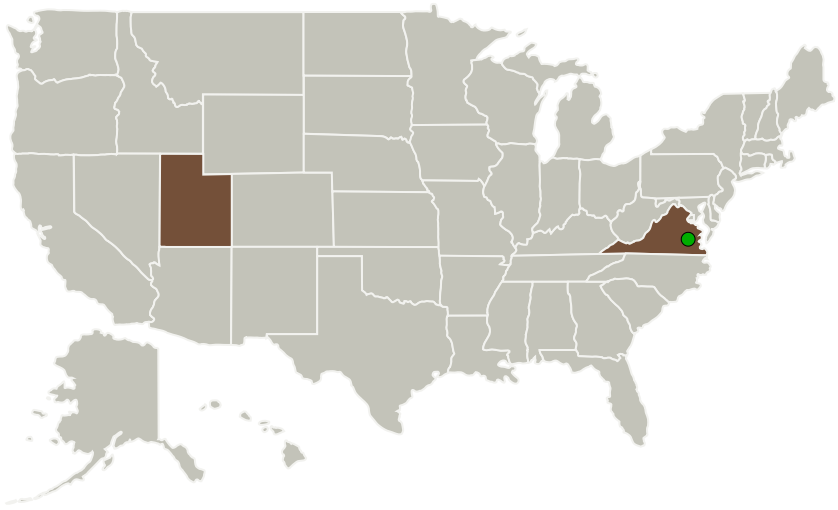
Mission-Aware Payloads for Unmanned Platforms, Phase I

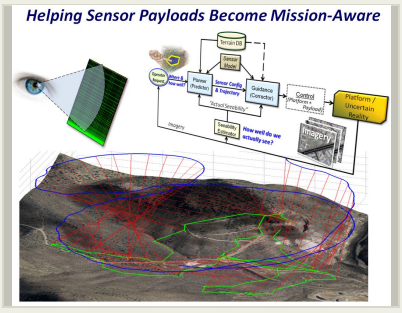
Completed Technology Project (2013 - 2014)

Project Introduction

Sentix and Brigham Young University propose the research and development of embedded payload intelligence for inflight optimization of surveillance, reconnaissance, and scientific missions. The current proposal leverages a substantial body of scientific and experimental knowledge derived from the Tactical Seeability™ System developed by Sentix' staff and BYU researchers to provide fully automated, optimal optical sensing over rugged 3D terrain. Discriminating features of our target capability include the following: 1.) A modular, sensor and platform agnostic framework for preflight and inflight modeling and optimization of performance in data acquisition missions, 2.) Mission impact modeling relating sensor payload configuration (states) to "sensing value" for the mission. 3.) An optimizer for the configuration of the aircraft and payload. 4.) An online estimator of current mission impact arising from the actual, achieved sensing, which can be used to inform a re-planning process for corrections to flight trajectories and payload configuration.

Primary U.S. Work Locations and Key Partners





Mission-Aware Payloads for Unmanned Platforms

Table of Contents

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
Mosaic ATM, Inc.	Lead Organization	Industry	Leesburg, Virginia
Brigham Young University-Provo	Supporting Organization	Academia	Provo, Utah
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Primary U.S. Work Locations	
Utah	Virginia

Project Transitions

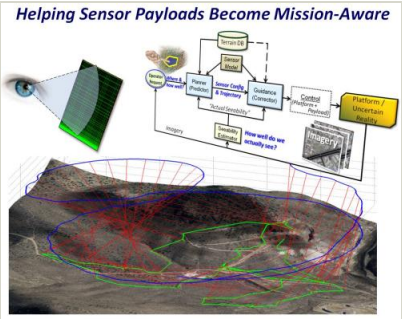
May 2013: Project Start

May 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138312)*

Images



Project Image
Mission-Aware Payloads for Unmanned Platforms
(https://techport.nasa.gov/image/125941)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Mosaic ATM, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Chris Brinton

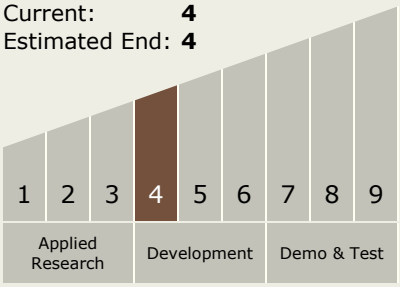
Co-Investigator:
Chris Brinton

Mission-Aware Payloads for Unmanned Platforms, Phase I

Completed Technology Project (2013 - 2014)

Technology Maturity (TRL)

Start: **4**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX10 Autonomous Systems
  - TX10.2 Reasoning and Acting
    - TX10.2.7 Learning and Adapting

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System